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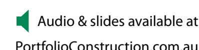
RESEARCH PAPER

PRODUCTS (ALTERNATIVELY)

Global commodities – capturing the boom without the bust

By Brett Dobeson, Associate Director Dealing and Risk Management, GoldLink Capital

Global economic growth in Asia has produced unprecedented demand for commodities – and opportunity for investors. But what's the best way to get set, short of shifting to Shanghai and playing the metals exchange? Shares have been the traditional way of capturing this investment opportunity, but they are limited and have their own inherent risks. Primary exposure – through the commodities themselves – is emerging as a new way to participate in this new cycle of global growth. This paper examines the benefits of investing in commodities and discusses how an active approach to commodity investing may mitigate downside risk, and create alpha opportunities that are unavailable to passive commodity index investors.



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The surge in commodity prices over the last five years has provided enormous wealth creation opportunities for investors. However, the ability to capture this growth and avoid the drawbacks associated with underlying commodity price volatility has proven challenging.

Why invest in commodities?

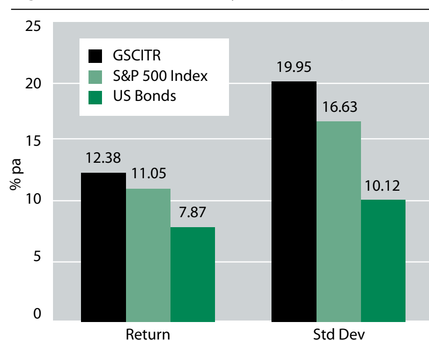
The potential for attractive returns is perhaps the most obvious reason for increased investor interest in commodities, but it is not the only reason. Commodities appeal to investors for a number of reasons, including:

- historically, commodities have generated excess returns over cash;
- commodity returns have had a low or negative correlation to returns of traditional assets; and,
- commodities are a hedge against inflation, geo-political and event risk.

Excess returns over cash

Commodities have historically generated excess returns over cash while exhibiting equity-like volatility. As shown in Figure 1, commodities (represented by the Goldman Sachs Commodity Total Return Index, GSCITR) returned 12.38% per annum from 1970 to April 2006, outperforming stocks (11.05% per annum) and US bonds (7.78% per annum).

Figure 1: Returns/Volatility – 1970 to April 2006



Notes: GSCITR = Goldman Sachs Commodity Total Return Index *Source: Goldman Sachs*

Low correlation to traditional assets

The case for including commodities in a portfolio becomes more compelling when considering the historically low or negative correlation of commodities' returns with those from traditional assets. Despite their equity-like volatility, commodities have rarely declined in the same year as equities. Between 1970 and 2005, the S&P 500 generated negative returns in seven years while the Goldman Sachs Commodity Index (GSCI) produced negative returns in eight years. However, only twice during that 35-year period did both commodities and equities produce negative returns in the same year.

The low correlation of commodity returns to traditional asset returns suggests there is diversification benefit to be gained by adding commodities to an equity and bond portfolio. As shown in Figure 2 (overpage), adding commodities to a 60/40 stock/bond portfolio at the expense of bonds helped reduce the portfolio's standard deviation while improving its risk-adjusted performance (Sharpe ratio). A 10% allocation to commodities at the expense of bonds increased returns by 0.54% per annum, reduced volatility by 0.93% per annum, and increased the Sharpe ratio by 0.08.

Commodities as a hedge

In addition, commodities may also act as a hedge against geo-political risk and inflation. War, terrorism, natural disasters, and other unexpected events may affect commodity prices differently compared to traditional assets. For example, in 1990 after Iraq invaded Kuwait, commodities performed well while equities declined (Figure 3 overpage).

A significant part of the benefit of investing in commodities is as a hedge against inflation. Most traditional assets do not benefit from rising inflation, but commodities generally perform well in inflationary environments. Gordon and Rouwenhorst

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(2004) found that commodity returns demonstrate a positive correlation to inflation, in contrast to the negative correlation of equities and bonds. This was even more pronounced in periods of unexpected inflation – commodity futures typically had already factored expected inflation into prices so the impact of unexpected inflation was greater.

Gaining commodity exposure

Commodities have played a relatively small role in portfolios in the past because it was difficult to gain broad exposure to the asset class. Investing in physical commodities such as a barrel of oil, a bushel of wheat or a lean hog is not practical, so investors tended to seek commodity exposure by purchasing commodity-related equities. However, this may not capture the potential diversification and other benefits a commodity exposure can bring to a portfolio. Buying shares in companies such as BHP, Rio Tinto or Newcrest only provides a limited commodity exposure compared to the broad based commodity exposures offered by indices such as Dow Jones-AIG (DJ-AIG) or GSCI (Figure 4).

Commodity-related equities also bear company and market specific risks unrelated to commodity prices:

- revenue gains from price rises in commodities are not always proportionately returned to investors as some of these gains may be re-invested in exploration or development of resource reserves;
- gearing and capital structure decisions may impact a company's share price or value and potentially overshadow commodity price moves;
- management, corporate governance and environmental events can affect a company's value or share price; and,
- hedging programs may alter the company's actual commodity exposure.

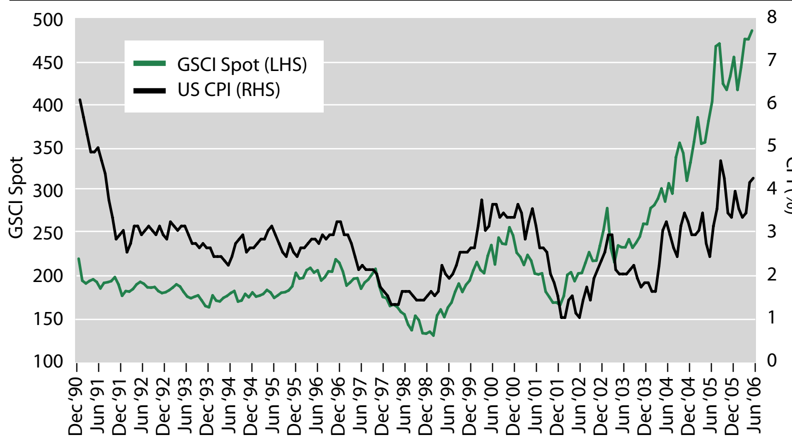
The commodity price boom and investor demand has bought about an ever increasing range of commodity investment alternatives – including exchange traded funds (ETF), structured notes, commodity indices, and commodity funds – that provide a broader-based commodity exposure. Gold and silver ETFs have proved particularly popular with equity market investors who prefer to buy shares through their stock broker rather than opening commodity futures accounts. There has also been explosive growth in commodity structured notes, which have appealed to bond investors. Structured note buyers are typically attracted to the capital protection, price participation, and customisation offered by these instruments.

Figure 2: Effect of adding commodities to a 60/40 stock/bond portfolio

GSCITR (%)	RETURNS (%PA)	STD DEV (%PA)	SHARPE RATIO
0	10.46	11.68	0.38
5	10.73	11.16	0.42
10	11.00	10.75	0.46
15	11.27	10.45	0.50
20	11.54	10.28	0.53
25	11.81	**10.24**	0.56
30	12.08	10.34	0.58
35	12.35	10.56	0.60
40	**12.62**	10.91	**0.60**

Notes: 1970-April 2006. Portfolio based on S&P500 and US bonds. Rebased and geometrically compounded on a quarterly basis. *Source: Goldman Sachs*

Figure 3: US CPI and Commodities Prices – Dec 1990 to Jun 2006



Notes: GSCI = Goldman Sachs Commodity Index *Source: Bloomberg*

Commodity indices

Commodity indices have proven an extremely popular way for institutional investors to gain broad-based commodity exposure. It is estimated that $US90 billion is currently invested in commodity indices such as the GSCI and DJ-AIG, with much of the growth occurring in the last three years (Figure 5). However, while returns have been impressive – the GSCITR averaged 23.04% per annum for the three years to 31 July 2006 – they have also been volatile (Figure 6).

Commodity indices are passive, long-only investments in a basket of commodity futures. The GSCI and the DJ-AIG are the most commonly followed indices in the market. Other commodity indices include the Reuters Commodity Research Bureau Index (CRB), Rogers International Commodity Index (RICI), and Deutsche Bank Commodity Index (DBC). While all commodity indices are designed to give investors a broad-based exposure to commodity price movements, the portfolio weightings, construction and calculation methodologies vary dramatically. The GSCI assigns weights to commodities based on a five-year moving average of world production, and as a result has a high allocation to energy (currently around 75%). One of its drawbacks is that it allocates more weight to commodities that have risen in price, while commodities have a tendency to mean revert. The

DJ-AIG relies on market liquidity data to determine component weights within the index. Individual commodities must have a minimum weight of 2% and a sector's weight may not exceed 33%. Figure 7 (overpage) shows the approximate weightings for the main commodity indices.

Regardless of construction methodologies and weightings, each of the indices suffers the same limitations. Commodity indices generate returns from three sources – spot price movements, interest on collateral, and roll yield. The return from spot movements is straight forward – if commodity prices rise, the contribution to the return of the index is positive, and if commodity prices fall, the contribution to index is negative. The interest on collateral is simply the return generated from investing the cash equivalent of the index exposure. However, the roll yield is more complex and is becoming increasingly problematic for passive, long-only commodity index investors.

Roll yield arises from rolling long futures positions through time along a sloping commodity forward price curve. Indices buy future contracts in the front end of the futures curve. As the future contract nears maturity, the position must be rolled forward to maintain exposure to the commodity price. These positions are normally rolled between the fourth and ninth business day of the delivery month. The shape of the futures curve will result in maturing contracts being replaced with cheaper contracts if the curve is in backwardation, or more expensive contracts if the curve is in contango.

This roll yield had been mostly positive in the past because energy markets have tended to trade in backwardation. Between 1986 and 2005, the roll yield contributed an average 1.7% per year to the return of the GSCI. However, in 2005, the roll return represented a net drag of -17% on the return of the GSCI. Despite this negative roll yield, the GSCITR still generated a return of 25.5% in 2005.

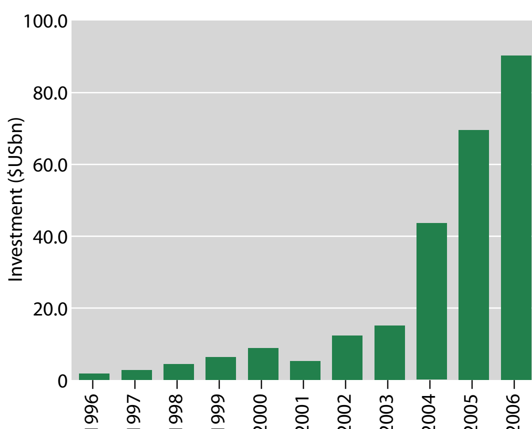
The surge of long-only money being invested in commodities in recent years is impacting the structure of commodity markets and contributing to price distortions. This has become particularly evident in

Figure 4: Commodities exposure of commodity-related Australian equities

SECTOR	SUB-SECTOR	BHP	RIO	NCM	GSCI INDEX	DJ-AIG INDEX
ENERGY	Crude Oil	Y			Y	Y
	Brent Crude				Y	
	Unleaded Gas				Y	Y
	Heating Oil				Y	Y
	Gas Oil				Y	
	Natural Gas	Y			Y	Y
INDUSTRIAL METALS	Aluminium	Y	Y		Y	Y
	Copper	Y	Y	Y	Y	Y
	Lead	Y			Y	
	Nickel	Y			Y	Y
	Zinc	Y			Y	Y
PRECIOUS METALS	Gold		Y	Y	Y	Y
	Silver	Y			Y	Y
AGRICULTURE	Wheat				Y	Y
	Red Wheat				Y	
	Corn				Y	Y
	Soybean				Y	Y
	Cotton				Y	Y
	Sugar				Y	Y
	Coffee				Y	Y
	Cocoa				Y	Y
LIVESTOCK	Live Cattle				Y	Y
	Feeder Cattle				Y	
	Lean Hogs				Y	Y
VEGETABLE OIL	Soybean Oil					Y

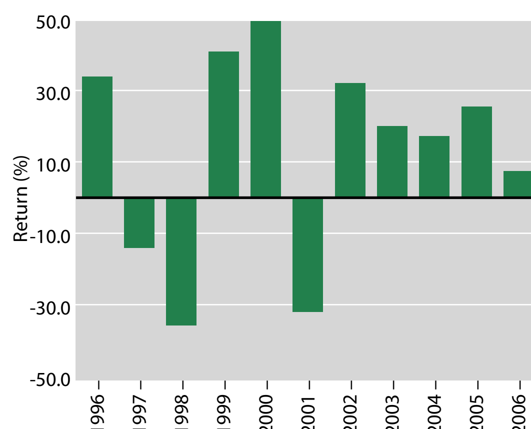
Source: GoldLink, Goldman Sachs, DJ-AIG

Figure 5: Investment in commodity indices



Notes: 2006 = Part year to 31 July 2006. *Source: Goldman Sachs*

Figure 6: GSCITR annual returns – 1996 to 2006



Notes: 2006 = Part year to 31 July 2006. *Source: Bloomberg, Goldman Sachs*

energy markets and less liquid markets such as base metals. Since 1995, the roll yield has been mostly positive, although it has been volatile. However, this is changing and with the exception of one period in 2005 (related to hurricane Katrina), roll yield has been negative since the beginning of 2004.

The West Texas Intermediate (WTI) forward curve has moved strongly into contango in the front part of the curve where most commodity indices invest (Figure 8). The contango in crude oil futures markets such as WTI is having a significant impact on commodity indices. These price distortions are raising doubts about the ability of commodity markets to absorb the funds flowing into passive, long-only commodity indices.

Not only is the weight of money pushing some commodity curves into contango, but the market is obviously aware of when the indices will roll their futures positions. Some market participants front run the indices and position themselves to take advantage of the futures rolls. As a result, the commodity indices face a steeper contango on the roll date, reducing returns.

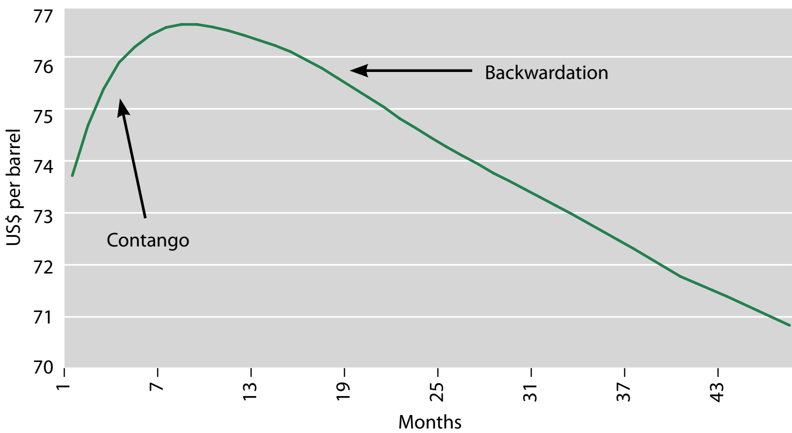
Limitations based on the contango and roll yield are not the only drawbacks faced by passive, long-only commodity indices. The commodities asset class is volatile, and indices offer little in the way of protection from any sharp declines in commodity prices.

Figure 7: Commodity index components and sector exposures

	GSCI	DJ-AIG	CRB	RICI	DBC
# of COMPONENTS	24	19	19	35	6
ENERGY	75%	33%	39%	44%	55%
GRAINS	8%	25%	13%	21%	25%
INDUSTRIAL METALS	8%	18%	13%	14%	10%
LIVESTOCK	5%	10%	7%	3%	-
PRECIOUS METALS	2%	8%	7%	7%	10%
SOFTS	2%	6%	21%	11%	-

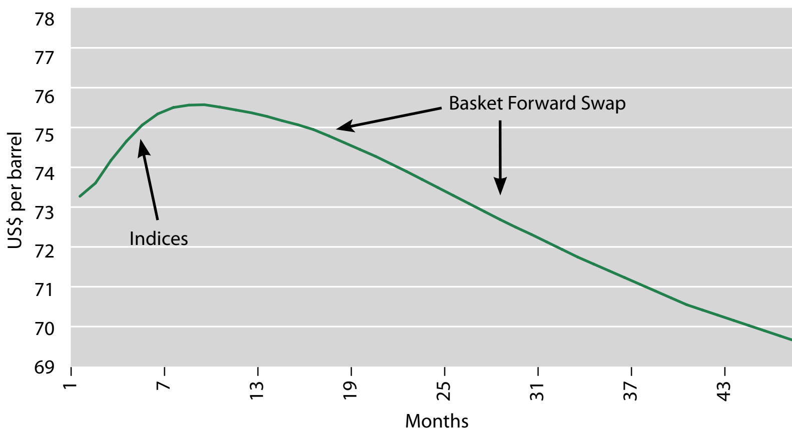
Notes: GSCI = Goldman Sachs Commodity Index. DJ-AIG = Dow Jones-AIG Index. CRB = Reuters Commodity Research Bureau Index. RICI = Rogers International Commodity Index. DBC - Deutsche Bank Commodity Index. *Source: Bloomberg, Goldman Sachs, DJ-AIG, Reuters, Deutsche Bank*

Figure 8: West Texas Intermediate (WTI) forward curve



Source: Bloomber, GoldLink

Figure 9: Brent crude forward curve



Source: Bloomber, GoldLink

Active management

The passive index approach to investing in commodities has been a successful strategy for the last few years. However, today's investors need to be more selective and look to actively managed commodity funds if they wish to avoid the pitfalls associated with funds that purely track commodity indices. Active managers seek to generate alpha exposure by executing strategies designed to exploit inefficiencies in commodity markets. Also, active risk management (such as the use of options) may mitigate some of the volatility associated with commodities, seeking to capture the boom and avoid the inevitable bust.

Increasing the weighting of those commodities and sub-sectors that have historically had the highest ranked Sharpe ratio and reducing the weightings of those with the lowest Sharpe ratio may generate superior risk-adjusted returns. Historical data over the past 15 years suggests commodity investors should favour sub-sectors such as industrial metals, energy and precious metals, while avoiding sub-sectors such as livestock and agriculture.

Some commodities provide active managers with alpha opportunities related to their seasonality, cyclical nature or correlation with other commodities. Natural gas is an example of a commodity that exhibits price volatility at certain times of the year. Many agricultural commodities trade in predictable patterns based on seasonality. These represent alpha opportunities for an actively managed commodity fund.

Active management can also mitigate the negative affects of the roll yield caused by contango. Additional alpha returns can be generated by using commodity swaps that roll just a few days outside the usual futures roll period (Figure 9). Commodity swaps can be structured in an actively managed fund so that futures contracts roll into dates most suited to maximising returns. Swaps can be structured using basket forwards as the reference rather than commodity indices. These swaps enable investment in that part of the curve that is in backwardation thereby generating a positive roll yield. Should the forward curve flatten, the basket

forward swap will outperform as it has effectively locked in a roll yield at a higher price than the new market price. Any steepening of the forward curve could result in underperformance. While this strategy is confined to those commodities with liquidity in the longer-dated futures contracts, it is another example of an alpha opportunity that is not available to passive index investors.

Avoiding "The Bust"

More and more investors are attracted to the returns available in commodity markets. The challenge is to capture the returns and limit downside risk. While the China story should help underpin commodity prices for some time yet, following every commodity boom is a commodity bust. The mean reverting nature of commodity prices is well known – commodity prices rise in response to an increase in demand, and higher prices eventually evoke a supply response that inevitably forces commodity prices lower. While passive, long-only indices offer no protection from a downturn in commodity prices, an actively managed commodity fund can adopt strategies designed to limit losses from declining commodity prices. These strategies may include tactically re-weighting index commodity exposures and the use of Over-the-Counter options on the indices, sub-indices or options on individual commodities. Although outright buying of optionality can be expensive given current high commodity price volatility, an active manager can implement strategies such that the downside protection is cost effective. This may include funding the downside protection out of some of the alpha generated by the portfolio's tactical tilt or by selling some optionality. An active manager is able to use options to effectively risk wrap the portfolio and reduce some of the volatility associated with commodity prices.

Conclusion

Investing in commodities was once considered too risky, with limited opportunities for direct exposure to the asset class. Today, commodities are positioned as an important strategic investment with a wider number of investment opportunities. The case for investing in commodities is clear – they provide access to potential equity-like returns and strong diversification benefits, they are not negatively impacted by inflationary pressures, and may also provide a hedge during times of geo-political turmoil.

The challenge is to decide the best way to access a commodities exposure. Investors are no longer dependent on commodity-related equities alone to gain exposure. Commodity indices have proven popular with institutional investors seeking to gain broad commodities exposure but these indices have limitations and inefficiencies. These may be reduced and exploited through active risk management to provide a desirable long-term outcome from investing in commodities.

ENDNOTES

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ABOUT THE AUTHOR

Brett Dobeson is Associate Director, Dealing and Risk Management for GoldLink Capital Asset Management. He has over 18 years experience in treasury, risk management and funds management. Prior to joining Goldlink in February 2005, Brett worked in the Financial Risk Management Group at Oakvale Capital, where he was responsible for managing commodity, foreign exchange and interest rate risk for a broad range of clients. He also spent five years working with currency overlay manager FX Concepts and three years pricing and broking derivative products in Singapore. Brett holds a Master in Applied Finance from Macquarie University.

GoldLink Capital Asset Management was founded in 1998 by Richard Kovacs, a former investment banker with more than 10 years of experience in the bullion and metals sector. After an initial private fund raising, GoldLink IncomePlus was launched in September 1999, the first long-dated gold forward sale by a non-gold producer. IncomePlus listed on the ASX in December 2003. A $A70 million capital raising was completed in December 2004 and IncomePlus established one of the largest gold derivative programs in the world. GoldLink launched a capital growth product, GoldLink GrowthPlus, in mid-2005 which aims to provide capital growth over the medium-to-long term. It listed on the ASX in August 2005 after an oversubscribed $30 million IPO. The funds management activities of the group are undertaken by GoldLink Capital Asset Management. GoldLink has built a small team of highly skilled professionals with strong investment banking backgrounds.